

What Is Claimed Is:

- 1 1. A method of rendering a scene, the method comprising:
2 obtaining first information including a part of a MPEG-4 BIFS
3 scene description stream and at least one coded MPEG-4 media stream;
4 decoding the first information using a BIFS scene decoder and
5 one or more specific application decoders associated with the scene
6 description;
7 obtaining second information including a second part of a BIFS
8 scene description stream that contains a reference to an external
9 application;
10 decoding the second information using the BIFS scene decoder
11 and an external application decoder;
12 composing an integrated scene including one or more decoded
13 MPEG-4 media objects and one or more external application objects
14 specified in the decoded scene descriptions streams; and
15 rendering the composed integrated scene.
- 1 2. The method of claim 1, wherein the reference to an external application
2 includes information corresponding to an ApplicationWindow node.
- 1 3. The method of claim 1, wherein the reference to an external application
2 includes a coded representation of a Universal Resource Locator relating
3 to a location where software for the external application decoder resides.
- 1 4. The method of claim 1, wherein the reference to an external application
2 includes information identifying a location for an application window
3 within the scene.

- 1 5. The method of claim 4, wherein the reference to an external application
 - 2 includes information identifying dimensions of the application window.
 - 1 6. The method of claim 1, wherein the reference to an external application
 - 2 includes a start time and a stop time, and wherein the method includes
 - 3 starting the external application decoder at the start time and stopping
 - 4 the external application decoder at the stop time.
 - 1 7. The method of claim 1, wherein the reference to an external application
 - 2 includes description information, and wherein the method includes
 - 3 displaying a prompt in the scene based on the description information.
 - 1 8. The method of claim 1, wherein the reference to an external application
 - 2 includes application parameters, and wherein the method includes
 - 3 passing the application parameters to the external application decoder.
 - 1 9. The method of claim 1, wherein the method further comprises:
 - 2 receiving information signaling that the external application
 - 3 decoder should run in the background; and
 - 4 signaling the external application decoder to relinquish an
 - 5 application window and continue to run.

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1 10. A system for rendering a scene, the system comprising:
2 a processor unit;
3 a memory device coupled to the processor unit;
4 logic coupled to the processor unit that includes logic to:
5 obtain information including a part of a MPEG-4 BIFS
6 scene description stream, at least one coded MPEG-4 media stream,
7 and a reference to an external application;
8 decode said information obtained;
9 compose an integrated scene including one or more
10 decoded MPEG-4 media objects and one or more external application
11 objects specified in the decoded information; and
12 render the composed integrated scene.

1 11. The system of claim 10, wherein reference to an external application
2 includes information corresponding to an ApplicationWindow node.

1 12. The system of claim 10, wherein the logic to decode information
2 comprises instructions stored on the memory device.

1 13. The system of claim 10, wherein the processor unit is an application
2 specific integrated circuit.

1 14. The system of claim 10, wherein the system further includes a network
2 interface, and wherein the application is a web browser.

1 15. An article of manufacture comprising a computer-readable medium
2 having stored thereon instructions adapted to be executed by a
3 processor, the instructions which, when executed, cause the processor
4 to:

5 obtain information including a part of a MPEG-4 BIFS
6 scene description stream, at least one coded MPEG-4 media stream,
7 and a reference to an external application;

8 decode said information obtained;

9 compose an integrated scene including one or more
10 decoded MPEG-4 media objects and one or more external application
11 objects specified in the decoded information; and

12 render the composed integrated scene.

1 16. The article of manufacture of claim 15, wherein the reference to an
2 external application includes information corresponding to an
3 ApplicationWindow node.

1 17. The article of manufacture of claim 15, wherein the reference to an
2 external application includes a coded representation of a Universal
3 Resource Locator relating to a location where software for the external
4 application resides.

1 18. The article of manufacture of claim 15, wherein the reference to an
2 external application integration includes a start time and a stop time,
3 and wherein the instructions stored on the computer-readable medium
4 further include instructions adapted to be executed by the processor to
5 start the external application at the start time and stop the external
6 application at the stop time.

1 19. The article of manufacture of claim 18, wherein the reference to an
2 external application includes description information, and wherein the
3 instructions stored on the computer-readable medium further include
4 instructions adapted to be executed by the processor to display a prompt in
5 the scene based on the description information.

1 20. A method of rendering a scene, the method comprising:
2 obtaining first information including a part of a MPEG-4 BIFS
3 scene description stream and at least one coded MPEG-4 media stream;
4 decoding the first information using a BIFS scene decoder and
5 one or more specific application decoders associated with the scene
6 description;
7 composing and rendering a scene including one or more decoded
8 MPEG-4 media objects specified in the decoded scene descriptions
9 streams;
10 detecting user interaction with the scene requesting activation of
11 an external application;
12 obtaining second information including a second part of a BIFS
13 scene description stream that contains a reference to the external
14 application;
15 decoding the second information using the BIFS scene decoder
16 and an external application decoder;
17 re-composing the scene by integrating a sub-scene specified by
18 the decoded second information into the scene; and
19 rendering the re-composed scene.

1 21. The method of claim 20, wherein the reference to an external application
2 includes information corresponding to an ApplicationWindow node.

- 1 22. The method of claim 21, wherein the information corresponding to an
2 ApplicationWindow node includes information identifying a location for an
3 application window within the scene.
- 1 23. The method of claim 22, wherein the information corresponding to an
2 ApplicationWindow node includes information identifying dimensions of
3 an application window.
- 1 24. The method of claim 23, wherein the information corresponding to an
2 ApplicationWindow node includes a start time and a stop time, and
3 wherein the method includes starting the external application at the start
4 time and stopping the external application at the stop time.
- 1 25. The method of claim 23, wherein the information corresponding to an
2 ApplicationWindow node includes description information, and wherein
3 the method includes displaying a prompt in the scene based on the
4 description information.
- 1 26. The method of claim 23, wherein the information corresponding to an
2 ApplicationWindow node includes application parameters, and wherein
3 the method includes passing the application parameters to the external
4 application.
- 1 27. The method of claim 23, wherein the method further comprises:
2 receiving information signaling that the external application should
3 run in the background; and
4 signaling the external application to relinquish an application
5 window and continue to run.